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ON 5/24/88
DAK-rough

OFFICE OF THE SURGEON
HEADQUARTERS
AMERICAL DIVISION
A. P. O. 502

15 October 1942

(Medical) GUADALCANAL

SUBJECT: Intelligence Report of CACTUS
TO : Commanding General, Americal Division
THROUGH: Surgeon, Americal Division
Ass't. Chief of Staff, G-2, Americal Division

1. The following report is the result of a personal investigation at CACTUS on 13 and 14 October, made under the authority of a verbal order of the Commanding General. The mission of the investigation consisted of

- a) The preparation of a Sanitary Survey of CACTUS.
- b) The acquisition of information on necessary changes in Medical Tactics and Technique as a result of the type of warfare now going on
- c) Intelligence on special medical problem
- d) Intelligence relating to other branches of the service that might be acquired incidentally.

2. The source of information, in addition to reports received at POPPY from Dr. Gaede of the U. S. M. C. Air Wing and Dr. Sapero of the U. S. Navy, consisted of answers to direct questions put to Lt. Cmdr. A. H. Wightman (M. C., U. S. N.), Cmdr. Brown, the Surgeon of the 1st Marine Division, Cmdr. Knowlton, Commanding Officer of the Division Hospital at CACTUS, Dr. Pratt, the Chief of the Surgical Service, the Surgeon of the 1st Marines, the Commanding Officer of Company "E" of the Medical Battalion of the 1st Marine Division, the Commanding Officer of the 1st Marines, and numerous other officers of the U. S. M. C., both medical and line, as well as a compilation of their informal comments. The information was sought during a period of intensive combat under almost constant aerial, land and naval bombardment, and hence is not as complete as possible, but the information is considered reliable both because of the sources and the frequent confirmation.

3. The report is presented in three parts:

- a) Sanitary Survey of CACTUS
- b) Medical Tactics and Technique
- c) General and Miscellaneous Intelligence.

ARTHUR G. KING
Lt. Col., M.C.
Medical Inspector

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PART I

SANITARY SURVEY OF CACTUS

1. Climata: The hot and rainy season extends from November through April, the rest of the year being dry and relatively cooler. The temperature ranges from an average of 70 degrees F. to about 90 degrees F. The humidity is very high at all times of the year, and rainfall amounts to 60-70 inches during the year, about half of it in December, January and February. Certain areas have as much as 200 inches of rain.

2. Soil and Drainage: The water table is at 10 feet in some places, and the drainage is very poor except in the mountains. Along the coastal plain, water stands in fox-holes and latrines for days. The soil is black humus on top of coral, and when wet forms a thick, black gumbo, resembling somewhat the mud in the St. Vincent area at POPPY. Vegetation consists of coconut groves along the coast and dense jungle in the foothills.

3. Water: The supply is ample, since there are numerous streams; however, there is a distinct problem in transporting water because of the poor and infrequent roads, as well as the ordinary transportation difficulties inherent to jungle maneuver. The water is highly contaminated and chlorination must be performed. On the other hand no serious outbreaks of intestinal disease traceable to water have been reported in isolated patrols that have been unable to obtain chlorinated water.

4. Milk, Meat and Vegetables: Some cattle were rounded up by the Marines as a reserve supply of fresh meat, and as far as is known the animals are still on a small island and have not been used, despite the almost desperate need for adequate food. The quantity of food available from unloaded stores is very low, and the men are distinctly undernourished, lacking protein and vitamins. Use was made in the beginning of operations of captured Japanese food stores, chiefly rice. Local food supplies are practically nil.

5. Insects, Animals and Pests:

a) Flies are numerous, annoying, and an important source of intestinal disease.

b) Mosquitoes: Present all during the year, but in tremendous quantities during the rainy season. There are both Culicines and malaria-bearing Anopheles, the latter biting only at dawn and at dusk, except in the darkness of the jungle when they are constant feeders. It is of note that Tulagi (only) is free of mosquitoes and malaria.

c) Ants: Very common, annoying, but not dangerous.

d) Spiders: Non-poisonous

e) Ticks: Animal parasites only, apparently not a human problem

f) Fleas: Present, but not in quantities sufficient to be a problem

g) Lice: Abundant

h) Centipedes and Scorpions: Some found, apparently not dangerous, although capable of painful bites

- i) Snakes: The coral snake, found along the coast, is the only snake found that is venomous. One other species is known but need not be feared. The coral snake bites humans with difficulty.
- j) Rats: Numerous and large
- k) Poisonous fish and rays: No information obtainable
- l) Dangerous plants, trees and fruits: No information obtainable.

6. Diseases:

- a) Malaria, without question the most serious disease condition present, exists throughout the year, but is worse in the rainy season. About 95% of the natives are carriers, and the form attacking the troops is exceedingly virulent, including black-water fever and cerebral malaria. Atabrine prophylaxis of 0.4 grams a week in variously divided doses has proven effective with but few exceptions, and it is believed that these cases were due to the failure to enforce the taking of the drug. Most of the cases which developed up to the recent present were the result of inadequate dosage.
- b) Yellow fever: None
- c) Filariasis: About 2% of the natives are believed to have the disease (Bancrofti type).
- d) Dengue: Not infrequent among the few white inhabitants
- e) Typhus: Not known to exist
- f) Cholera: None
- g) Plague: No information, none believed known
- h) Yaws: Common; an infection rate of as high as 50% is reported for some of the native tribes.
- i) Oriental Boil: None reported
- j) Leprosy: A survey made in 1937 revealed about 1% of the natives affected
- k) Tuberculosis: No studies have been made
- l) Meningitis: No information
- m) Influenza: Known among the natives in epidemic form, with very serious results
- n) Poliomyelitis: Not known to exist
- o) Diphtheria: No information obtainable about the natives; occasional cases among the whites
- p) Common exanthemata: No information about the natives obtainable
- q) Dysentery: Present, but frequency not determinable; amoebic type, known to be present; bacillary type, very common
- r) Hookworm: Very common among the natives
- s) Other worm infestations: No studies ever made as far as is known
- t) Skin infections: All sorts of fungus infestations are known, both among the natives and whites. About 90% of the Marines have severe infestation of epidermophytosis, and about 20% have developed tinea, of a greater or less severity. Scratches and cuts become readily infected and heal slowly, due possibly to under-proteinization.
- u) Tropical Ulcer: No such condition is known by that name. The name is probably given by the layman to ordinary skin infections which heal slowly.

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PART II

MEDICAL TACTICS AND TECHNIQUE

1. Statistics: In the two month period between 7 August and 7 October, which included all types of fighting, there were 957 casualties with a mean strength of 14,000. Of these 957 casualties, 256, or 27%, were killed or died of wounds, and the remainder were seriously enough wounded so that all but about 1% were evacuated. The number so slightly wounded as to be able to be returned to duty after treatment at the battalion aid station was undeterminable, since records had not been compiled, even if available.

2. Evacuation: For the type of warfare and the particular situation it was the consensus that the following principles of evacuation be employed:

a) From the site of casualties by litter. The bearers have terrific handicaps, are exposed, and must be reinforced.

(1) litters are impractical in jungle, and a sling type of one man carry proved best

(2) litter bearers, or patient bearers must not be burdened with pouches or equipment

(3) carries of as long as five miles are necessary so that frequent relief and relays are essential

(4) line personnel had to be employed on occasions.

b) From the battalion aid station the responsibility of evacuation was placed upon the regimental surgeon instead of the 2nd echelon unit commander (medical battalion) for the following reasons:

(1) lack of communications

(2) lack of transportation, making necessary the use of trucks of all sorts, usually those bringing up ammunition or supplies and which would ordinarily return empty

(3) lack of roads and the interdiction at times of usual routes

(4) the relative stability of the division hospital in terms of the mobility of the battalion aid station.

The route of evacuation was directly to the division hospital or its conger. There was no intermediate collecting station.

c) From the division hospitals casualties were evacuated away from CACTUS exclusively by air.

3. Organization:

The most striking changes in the employment of the Medical Department personnel occurred in the 2nd echelon of evacuation. Although organized, much like the Army, as a medical battalion of three collecting companies and a clearing or hospital company, it was found necessary to reinforce the battalion surgeons with personnel and equipment, including transportation. Although the Division Hospital was set up, with approximately 100 beds, it was found necessary to have two other hospitals to do the same type of work, and the personnel were drawn from the station elements, while

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the strictly collecting and transportation elements were sent forward to the battalion aid stations as reinforcements.

It was recommended that each combat team of an infantry regiment and supporting artillery have heavily reinforced medical detachments which will also assume the responsibility of evacuation to the rear, and a clearing hospital of about 100 beds. No effort would be made to do definitive medicine or surgery.

4. Professional work during combat: Emphasis was placed throughout the process of evacuation on three things: treatment of shock, arresting of hemorrhage, and evacuation to the rear.

a) Shock was treated with copious use of plasma and warmth, in the aid station, and the treatment continued at the division hospital.

b) Wounds were debrided only in extreme cases. Washing with green soap, irrigation with saline, hemostasis, simple antisepsis, dusting with sulfonamide crystals and a dry dressing constituted the entire treatment. All this was done at the aid station and little more was attempted at the division hospital, since evacuation from the island was so rapid.

c) Fractures were reduced if possible in the aid stations and splinting improvised, often with plaster. The splints were not removed, nor was further treatment; i.e., perfect reduction attempted, even at the Division Hospital, since evacuation from the island was usually fairly rapid. Traction was attempted only where over-riding was very marked.

d) Perforating wounds of the abdomen were treated by operation at the division hospital. Plasma and often whole blood were used frequently.

e) The infection rate was astonishingly low. Sulfanilamide by mouth as well as in the wound was used routinely.

5. Equipment:

a) The pouches of the aid-men must be kept as light as possible, and any type of labor saving device possible made available to them, such as Band-Aids for the many small wounds of shell fragments. Adhesive tape and gauze was found more satisfactory than bandages. On the other hand, for isolated patrols the aid men have to carry many items useless in battle, such as quinine, bisanth and paregoric, hypochlorite tablets, etc. It was therefore found that a single type of pouch was impractical, and pouches for different types of work had to be made up and kept available. The litter bearers carried nothing in the way of medical equipment because of their arduous work.

b) The aid stations required much more alcohol, saline, plasma, heating pads, blankets, splints, plaster than is usually supplied. Gantian violet was found of great value in skin infections, and a dusting powder of thymol iodine, salicylic acid, boric acid and starch was found very effective for epidermophytosis. Bismuth and paregoric mixture was used in tremendous quantities. Quinine and atabrine stocks, of course, were greatly increased.

c) Brandy and whiskey were used freely as a therapeutic measure, with excellent results.

6. Installations:

a) The digging of fox-holes for personnel was the first procedure upon taking up position.

b) Immediately afterward, both aid stations and hospitals found it essential to construct large dug-outs for the shelter of the patients in the event of air attack. These attacks occurred 61 times in 68 days, often four or more times a day. In addition night shelling of the division hospital occurred 13 times, and the aid stations were under almost continuous artillery fire (not, as far as could be determined, deliberate). In both the aid stations and the division hospital enemy sniping occurred in the early weeks of the occupation, and patrols to keep the adjacent woods free of snipers were essential. These were sometimes provided by the line troops, but occasionally had to be performed by Medical Department personnel. The dugouts were made as deep as possible, were provided with racks for the litters, tables for working, some lighting, and ventilation. They were roofed with two layers of logs of coconut trees, covered with three to four feet of earth. Care had to be used that the logs extended at least two feet on either side to prevent collapse, and interior bracing was necessary, in some cases. It was found that on some days the patients spent as much as 75% of the time in these dugouts. The regimental surgeon was usually advised as to the degree of permanence of the installation.

c) Dispersion of equipment and personnel cannot be overemphasized.

d) Care must be taken that kitchens and latrines are protected from snipers.

7. Records: Only the simplest records can be kept, and the Emergency Medical Tag and a simple blotter were the only records used within the division. On the other hand specific details must be given on the E. M. T. as to what was done in the way of treatment. Tetanus Toxoid (0.5cc) was given routinely to casualties and the patient had a "T" marked on his forehead to indicate the fact.

8. Special Medical Problems:

a) Psychasthenia and War Neurosis proved the most difficult problem and accounted for a large percentage of evacuation since these men tended to unnerve or stampede other individuals. Included in this type of case are malingerers, who were dealt with severely, although the acuteness of the situation left little time for diagnosis and the soldier was temporarily given the benefit of the doubt. Self-inflicted wounds occurred and strict and prompt disciplinary action had to be taken by commanding officers. There was one suicide in the 164th Infantry after the first shelling on the first day.

The men were in a pitiful state of nervous exhaustion after the long period of combat without relief, the constant aerial attack or threat of it, the lack of any regular sleep, and the inadequate food. Two soldiers in-

servicemen reported that the most comfortable period of the occupation, for them, was when they were on a patrol, freed of the fear of aerial attack, and able to take turns sleeping. This, despite the danger of surprise attacks by enemy patrols in the jungle. Officers suffered as much as the men, and the aviators were particularly susceptible and had to be evacuated in alarming numbers. An important function of the Medical Department was to detect an impending psychological "break" in any officer or non-commissioned officer and have him relieved before he failed tragically in his responsibility and jeopardized the military effort.

b) Malaria occurred even in troops who had already had attacks of it in other tropical islands, suggesting that immunity to the particular bacteria of Malaria had not been acquired necessarily by previous infection.

c) Epidermophytosis, sometimes almost disabling, occurred in about 90% of the troops and was a vital problem. Tinea inguinalis and a variety of skin infections were very common because of the terrific sweating and the absence of any bathing facilities.

d) Avitaminosis is quite marked. Two cases of xerophthalmia were detected and a great deal of cheilitis. Underproteinization is undoubtedly grave, and the loss of weight averages about 15 lbs. The loss of salt from the profuse sweating is marked, but no specific measures have been taken to overcome this. Getting of any food at all, to say nothing of a balanced diet, is a problem.

e) The problem of malarial chemoprophylaxis is a difficult one since disciplinary action was found necessary to insure that the men took the necessary drugs regularly. With small patrols this is almost impossible, and a number of soldiers have indicated they preferred to get malaria as a means of being evacuated. While every effort is being made to provide mechanical protection against mosquitoes (and flies) the constant alarm, requiring the men to go in fox-holes and shelters a good part of the time neutralizes its usefulness.

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PART III

GENERAL AND MISCELLANEOUS INTELLIGENCE

1. Training and discipline show their value in the situation at CACTUS where the men are all physically and mentally exhausted. Most of the men exhibit a glassy stare, move as little as possible, are either apathetic or abnormally excitable; yet their responses to command and danger are automatic, precise, and satisfactory.

2. Among disciplinary measures that must be insisted upon are:

a) The digging of an adequate fox-hole immediately upon preparing to bivouac, regardless of exhaustion.

b) Remaining near the fox-hole during the "Condition Yellow" signal, i.e., alert, and immediate, but unhurried descent into fox-holes or dug-outs upon the appearance of the "Condition Red" signal.

c) Remaining in the fox-hole till ordered out after an aerial attack, since anti-aircraft shell fragments fall as long as five minutes after the shells are fired. Also, enemy fighter planes occasionally descend and strafe the ground.

d) Never moving from one shelter to another during aerial attack or shelling, regardless of apparent relative advantages.

e) Perfect light discipline because of enemy snipers and, unfortunately, overanxious, nervous friendly troops. Driving with true blackout lights; i.e., no illuminating lights whatever, while under nervous tension has caused many accidents.

3. Officers and non-commissioned officers at CACTUS have been instructed, and a certain pride is taken by them, in using calm language at all times. Orders are given quietly even under stress, and every effort is made to avoid intensifying the tension. An officer upon whom a soldier drew his pistol when he entered the dugout without giving the pass-word, quietly reprimanded the boy; this was not considered remarkable by the other officers, even though it occurred during a severe aerial bombardment and the officer was almost caught outside the shelter by bombs falling close by, and was himself in a terribly nervous state.

4. All personnel must be kept off the ground when sleeping, and to this end if cots are not available improvised beds are made; these however, are not comfortable, and since so little time for sleeping is available, it is desirable that when the opportunity does present itself the enlisted man be able to sleep well.

5. Water discipline is very difficult to maintain, and the transportation of water is a great problem. Constant supervision by unit commanders is essential. Instructions must be clear-cut and water cans carefully marked for drinking.

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6. Food of all sorts is desirable. The intense craving for sweets indicates a deficiency in the carbohydrate component of the rations issued. Since a carbohydrate deficiency impairs activity, much food (and supplementary sweets) should be provided. The problem of under-proteinization is not dangerous unless the process is carried on over a period of time, such as several weeks. Vitamin deficiency is a real danger and capsules should be supplied and their use enforced. The use of salt tablets is considered by the medical officers at CACTUS desirable, although oversalting of the food and perhaps the addition of small amounts of salt to the drinking water would rectify the situation. The procurement of any food whatever has been such a problem that these other elements have had to be passed over. Comment was made by several individuals on the horrible wastage of precious canned foods by careless handling in unloading and storing.

7. Collection, identification, and burial of the dead: A distinct policy should be enunciated by division command and enforced appropriately on the question of handling the dead. At CACTUS there is considerable confusion in the minds of many small unit commanders, with the result that the hospital is erroneously asked to interrupt its evacuation and treatment of the wounded to collect and bury the dead.

8. Communications are naturally difficult to maintain, and for alerts and signals, visual signals are used, as well as word of mouth transmission. Every unit at CACTUS is trained to have constant observation of neighboring units and to pass on signals. Drivers of trucks have to be particularly observant and are equally conscientious about transmitting information.

9. Vehicles are at a premium, and are rarely empty. Runners and casualties are invariably given priority.

10. Gasoline and Ammunition storage is practiced with greater care than at POPPY, the dispersion being far greater, and smaller stacks being the rule. Frequently dumps were observed with but three drums of gasoline to a stack or four boxes of small ammunition, well dispersed. The loss of stored ammunition during the shelling of the night of 13-14 October was very low, despite the large number of explosions that occurred.

11. Matches and cigarettes are almost universally carried in tins.

12. Firewood for #1 ranges is hard to get. If #37 gasoline ranges are taken, an adequate supply of spare parts must be taken.

13. Both infantry and artillery found that an unusually large supply of cleaning and preserving material is needed.

14. Green visored fatigue caps have been taken away from all the troops at CACTUS since they resemble so closely the cap of the enemy troops, and many near-accidents have occurred as a result of mistaken identity on the part of nervous soldiers. The green herringbone coverall has been found to be much warmer than cottons and is very unpopular. The two piece herringbone fatigue is better than the coverall, and many enlisted men have cut the coverall at the waist to make it a two piece garment and permit circulation

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of air.

15. Other elements of information communicated verbally this date are not included in this report because of their confidential nature.

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